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ABSTRACT

A model for assessing unemployed workers and providing useful information for counseling these workers for further training and retraining was developed and tested in Chicago with a sample of 25,000 subjects over a two-year period. The model, called the Manpower Assessment and Placement System (MAPS), was designed to give one-day turnaround time with a favorable cost/benefit ratio for large-scale processing of unemployed workers. An individual participating in the MAPS system was given two achievement tests (reading and mathematics), an interest inventory, and a personal history form that he/she used to provide information on previous work history, personal, and demographic data on their current status. Information generated by the tests and the interest inventory was entered into a computer; counselors used the personal history forms during interviews with the clients. Counselors used information received to refer clients to jobs or to 26-week training programs. The system reduced the cost for processing each client to about $50. The clients served by the MAPS system, based on a random sample of 425 clients, were heavily minority. About half were male; the average age was 27, and they scored an average reading level of 7.5 despite an average of 12 years of schooling. Although the MAPS system is one avenue for helping unemployed workers, an overhaul of national industrial policy is needed to provide more jobs, a task that cannot be accomplished through retraining. (KC)

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Developing and Testing of A Model for Manpower Assessment and Placement of Unemployed Workers

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This paper preserts the results of an analysis of several years data on a system for manpower assessment and placement into jobs and training schools of a large number of unemployed workers in Chicago, Illinois. The main purpose of the Manpower and Assessment Placement System (MAPS) was to test, counsel and place large numbers of displaced and unemployed workers into schools for retraining, into educational agencies for basic skills and into new job placements. In this paper we shall: 1) examine the components of the system, 2) present a description of the clients who were processed, and 3) explicate a series of observations on social policy and the unemployed. The system was developed to fulfill a series of specifications as set forth by the Mayor's Office of Employment and Training (MET) of the City of Chicago.

Previous attempts to devise a system had not been successful in screening clients efficiently and placing them accurately. Frequently the client became lost in the system or discouraged to the point of not responding to follow-ups for placement. As the number of unemployed soared in the depression of the 1980's, the system then in place became overwhelmed with the sheer numbers that were moving into the ranks of the unemployed. A relatively straightforward computation of costs on referrals for the system then in place quickly found that the screening and placement process accrued costs of $700 per client and could not be expanded to handle thousands of unemployed workers through enlargement of the placement personnel without completely unhinging the fiscal underpinnings of the City.

The specifications for a new system became the objectives driving the

design of the new Manpower Assessment and Placement System (MAPS). Specifications as set forth by MET were: 1) to design an efficient and effective system to screen and process large numbers of unemployed workers for placement in training schools, educational agencies and jobs, 2) to develop computer programs and data processing that would provide one day turn around on needed counselor information to be used in the screening and processing, 3) to select or develop tests and other data gathering instruments that would be unbiased and which would efficiently provide information for counseling of clients, 4) to complile a catalog of placement referrals which could be efficiently used in the counseling process, and 5) to refine and distill the amount of information needed by the counselors and the City agency for accurate placement and monitoring of the system.

Theoretical Framework

While the MAPS involves a computer processing system for data, the purpose for developing the system and its origins are embedded in a theory of industrial policy which is being widely debated. Industrial policy, its formulation and implementation, is very central in the debate over the direction of governmental efforts in stimulation of the economy. Most debates on industrial policy revolve around the use of capital, the provision of incentives, and the support and development of training programs. The system itself is composed of known establish components which are mechanically hooked together through a computer information system to serve a ready-made clientele of unemployed. However the rationale for such a system does relate to the larger area of development

of industrial policy, specifically on the priority to be given investment in the training of manpower as a major causal force in maintainence and expansion of the economy.

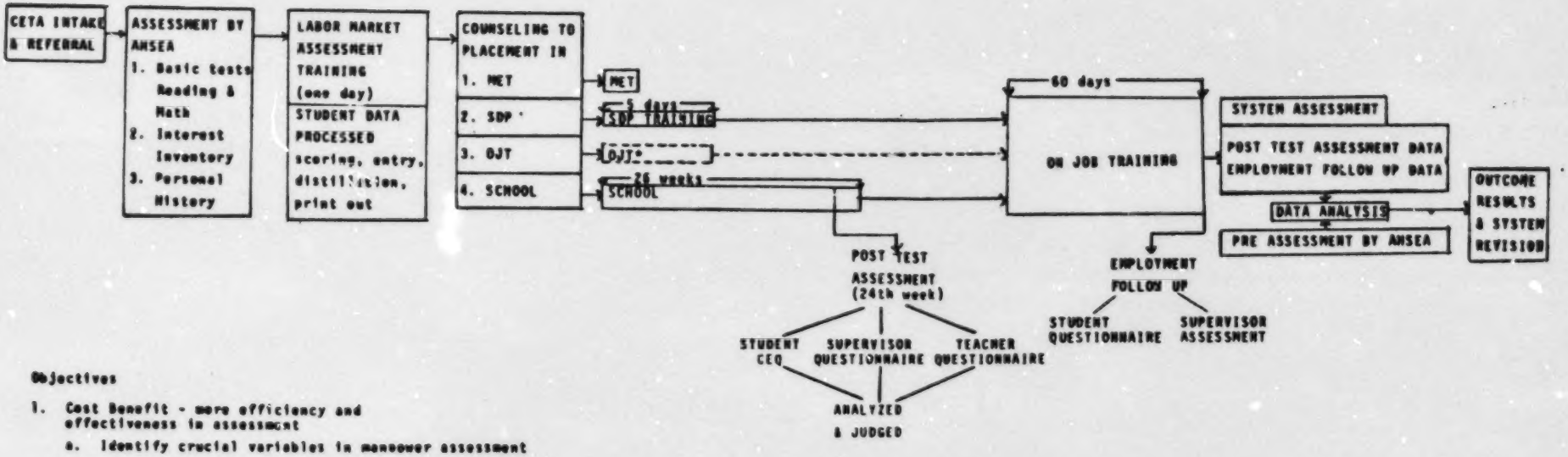
As designed, the system is founded on an assumption concerning human capital development. In theory and practice investment in human capital has become a driving concern for all industrial as well as underdeveloped nations. Some economists estimate that as high as 65% of the gross national product can be accounted for by human capital contributions in the economic process. While there may be disagreement over the exact amount of contribution that human capital makes, it is widely accepted that modern industrial countries must invest in education and training and make both available over the lifetime of workers if a viable economic system is to be maintained. Although the macro process of human capital formation and its necessity to a country are acknowledged by a major school of economists, the micro process on how it is efficently implemented presents difficulties in both policy formation and operationalization. The model that is described adheres to the theory that human capital can be enriched and enhanced through training and schooling. However, essential to the micro process is the identification of talent and matching with training and placement if human potential is to be realized. The manpower assessment and placement model presents one solution to the components of the micro process of screening the unemployed, providing more training or basic skills and placing them back into the economic system with greater potential for making a capital contribution through enhanced productivity. An aspect of the validation of the system is the test of the proposition

that human capital, now unemployed, can be enhanced and returned to more productive work through the MAPS model and is not wholly dependent upon upswings in the overall economy.

The MAPS as designed and implemented does not carry the process completely thru from the assessment to placement and follow-up after placement. As the process was designed for MET specifications it was separated distinctly into a computer based retrieval system which was MAPS, then under a separate contract another agency did placement of clients after training.

Description of the System

As originally designed MAPS was to take in a client thru a community based referral (CETA) of MET which identified individuals who were unemployed and placed them into the assessment system. Figure 1 presents a schematic showing the relationship of components in the design of MAPS. The client was referred to MAPS where they were given an assessment series consisting of two achievement tests, reading and math, an interest inventory, and personal history blank which solicited information on 29 variables. The latter provided information on previous work history, personal, and demographic data on their current status. These data were part of the requirements of the federal job program (CETA and JTPA) which funded the Mayor's Employment and Training Office's efforts with the unemployed. Once the clients entered the system they reported to a central processing facility where they took the achievement tests, filled out an interest inventory and completed a personal history. The achievement tests and the interest inventory were scored, processed, and entered



Objectives

1. Cost Benefit - more efficiency and effectiveness in assessment
   a. Identify crucial variables in manpower assessment
   b. Types of instruments and procedures most effective in assessment
   c. K. Arrow or T. Schultz theory of employment tested

* Indeterminate length of time

** Revised August, 1983

Figure 1. Manpower Assessment and Placement System (MAPS)**

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directly into the computer and a print out was issued for use by the counselors on the next day. On a three-day schedule then, the clients came in, completed the achievement tests, interest inventory and personal history, they came in the next day and engaged in an orientation training session on job search and interviews, and on the third day they met with the counselor who then examined their personal history blank, test scores and the interest inventory in the conduct of a personal interview. From these data the counselor then examined the potential for placement either in training schools or jobs or if it appeared that the client did not meet any of the criteria for moving in either of these two directions, they were then referred back to the Mayor's Employment and Training Office. The training schools were 26 weeks in length and started on fixed schedules unrelated to MAPS processing. Clients qualified for admission, were put into the data bank of available candidates and as class placements opened were enrolled into the training schools. In the initial design of the system there were some typical glitches such as finding appropriate achievement tests, working out some of the problems in the personal history blank to make sure that all the information was obtained that was needed to comply with the government program but yet was not intrusive into the individual's private life and refinement of a too lengthy interest inventory. At the onset the interest inventory was too long, the reading load was too heavy and some experience with it allowed the reduction of the number of items down to less than 100 choices, inasmuch as they accounted for over 90% of the responses.

Once the system was debugged it became fairly routine to test the

individuals, enter them into the data bank, provide the printout for the third day for the counselors, equipping them with a personal history file along with a computer printout on each individual. Over a two year period the system handled over 22,000 clients. They, at peak times, came in very large waves so that over a three month period there could be as many as a thousand a week coming into the system to be processed. There were a number of routine difficulties encountered that had to be resolved: people coming in taking part of the assessment series and leaving, clients would become part of the data bank leave before completion of screening later on come back and enter into the system again on a referral and appear to be retested again. On the whole though the system worked very well and became very efficient as the cost of processing dropped considerably. From the identification and entry of a person in the field through placement and follow up through the training school, the cost was eventually reduced to about $50 per client. These costs included the several components which are shown in Figure 1. The system had two locations of operation, one was a large downtown center where the tests were administered under trained personnel. At the central downtown location the counselors met with the clients to provide job training and counseling for referral. The other location at a university contained the data processing and data bank which were stored and maintained within the university computer system. At the university location the tests were scored and all data entered into the computer files for retrieval. In addition to the initial data which was obtained on day one, the Referral for Placement Form provides input on

whether and where the person was placed. The training schools had the right to refuse the placement of an individual on their own criteria although as the system developed and matured this proved to be quite infrequent. There was also further information obtained from the placement school on the student's progress in the training program as well as information obtained by a counselor who went out to the school and examined the student's adjustment to the school. We are still processing the data on the interaction of the students with the training schools and that will be presented in a later paper.

At this time we have made an analysis of the characteristics of the clients from the information that was obtained in the first day of the MAPS process.

Descriptive Characteristics of Unemployed

Over a two year period 22,000 clients were processed under MAPS. A summary of the characteristics of the clients was drawn from the file. Some of the descriptive statistics are based on an analysis of a random sample of 425 clients. The unemployed were heavily minority, 74% were black, 15% were Latino, and 7.5% were white. They were 51% male, 49% female. Sixty-two percent were single, 17% were married, 10% separated, 9% divorced and 1% widowed. Fifty eight percent had high school diplomas, 15% had a G.E.D. certificate and 27% had not finished high school. The average years of school completed was 12 with a S.D. of 1.8 and the average age was 27.4 with a S.D. of 7.8. They were measured on two areas of achievement, reading and math computation. Glances of these data are presented in Figures 2 and 3 by percentages of clients achieving certain grade levels on these two

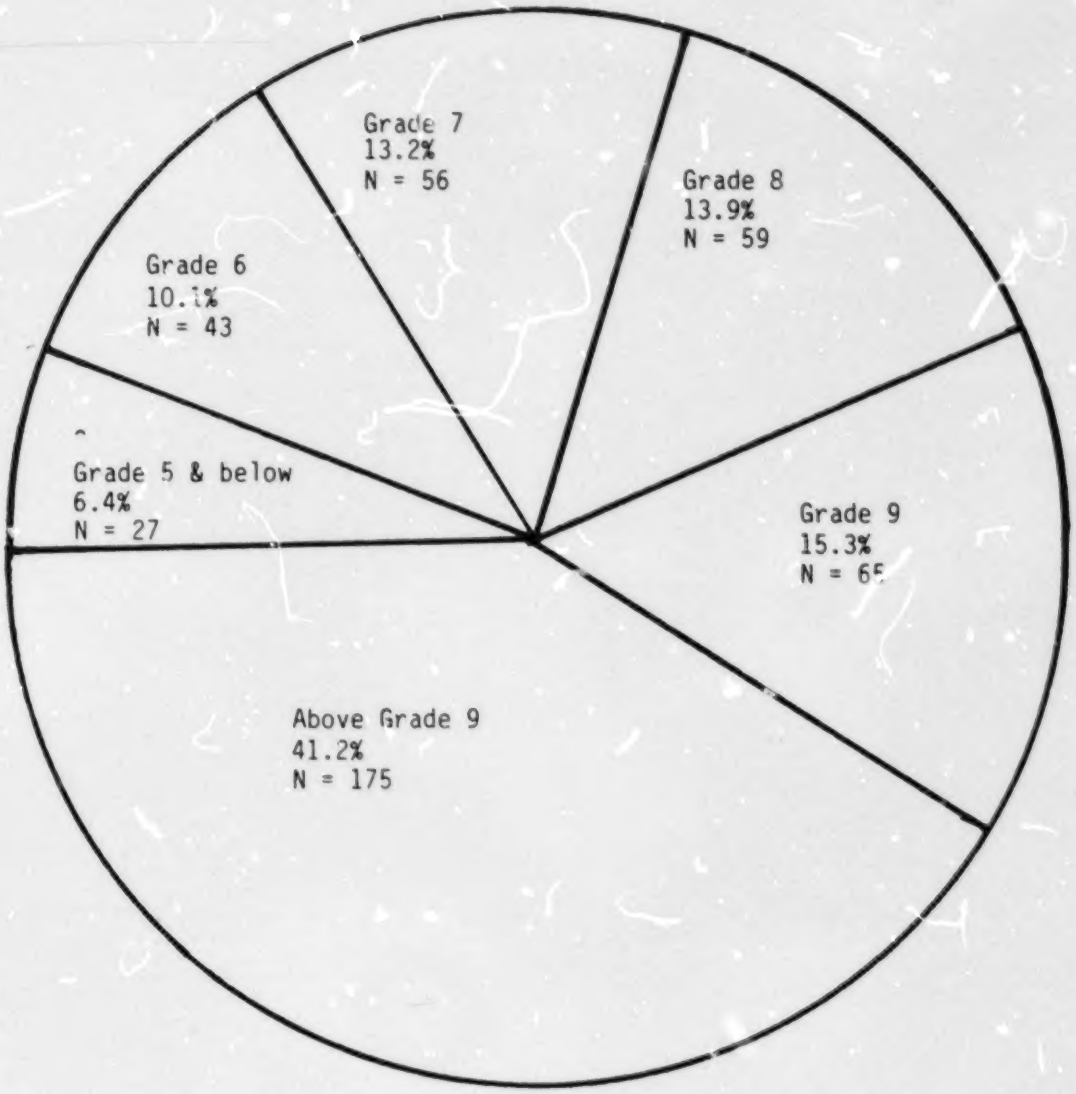

Figure 2. Percentage of Clients Scoring by Grade Level (Reading)
N = 425

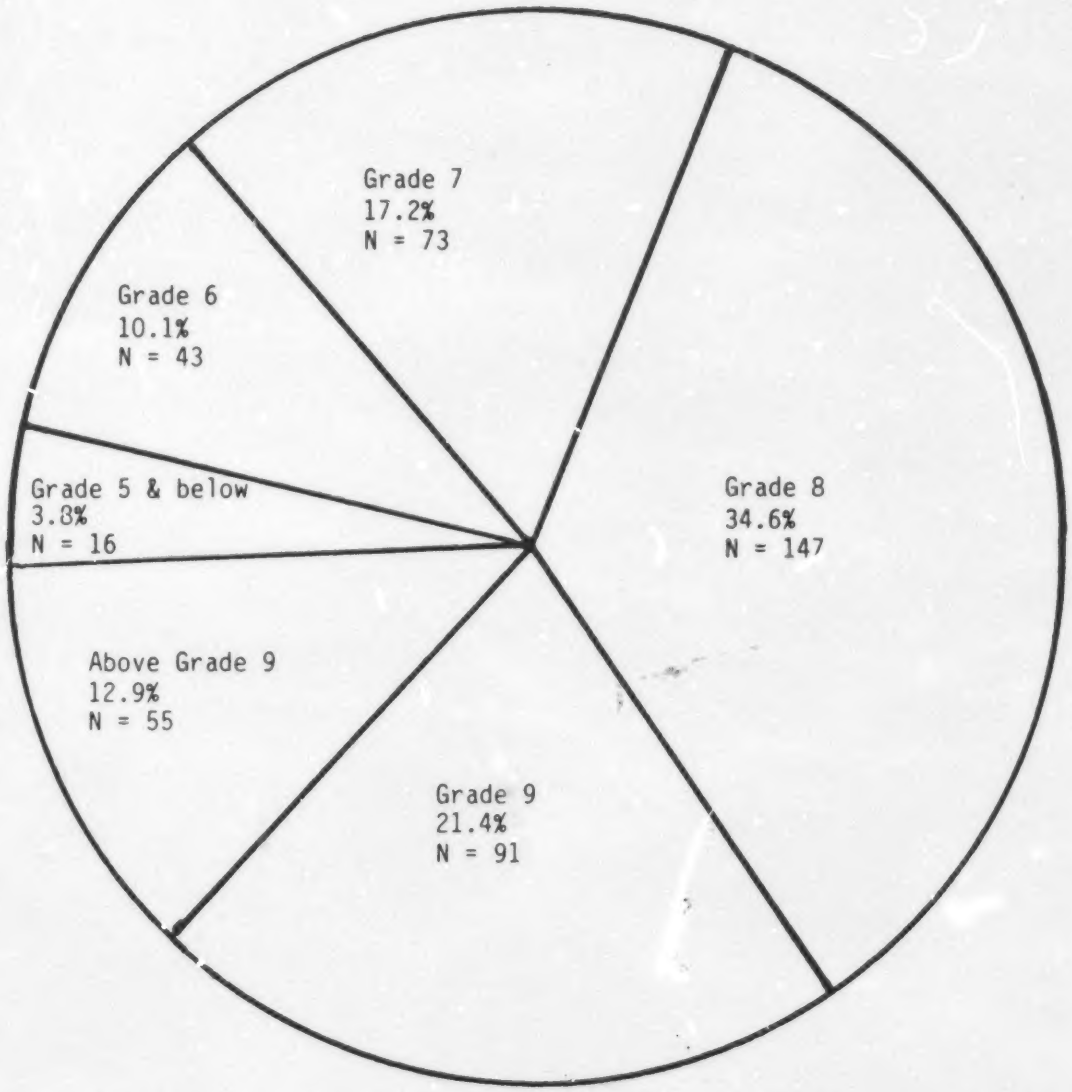

Figure 3. Percentage of Clients Scoring by Grade Level (Mathematics)
N = 425

achievement tests. Despite the number of years of school completed the average reading score was 7.5 with an exceedingly large S.D. The average math computation was also 7.5. What is perhaps most interesting with regards to the achievement scores occurs when one looks at the median scores in reading of 8.4 and the median score in computation of 7.8. The median reading score indicates the great number of very low scores which drew the mean score down.

We also examined for purposes of this paper the level of jobs that were held and the most recent types (Figure 4) of jobs that were held. We find, for example, that 35% held white collar jobs in business although these are not particularly highly skilled, blue collar jobs were held by 38%, food and health area jobs were 10%, and all others were 12%. In this distribution of jobs we found that on the most recent job in the white collar classification clients had held a job for 20 months, food health service for 18 months, and for blue collar workers 30 and the total of all others was 17. However, there was again a very wide S.D. so the more informative figure was not the mean but the median. We found that on all classifications of the job previously held the median was 9 months. Figure 5 shows the distribution of jobs by males and females. The white collar jobs were heavily held by females, some 60% of those in our sample. The males weigh in much more heavily in the blue collar jobs with roughly 56% of them in this classification. If you break this down further, by ethnicity, we see in Figure 6 that the unemployed whites are heavily in blue collar jobs, the blacks who were unemployed were more heavily represented in white collar jobs followed by blacks in blue collar jobs.

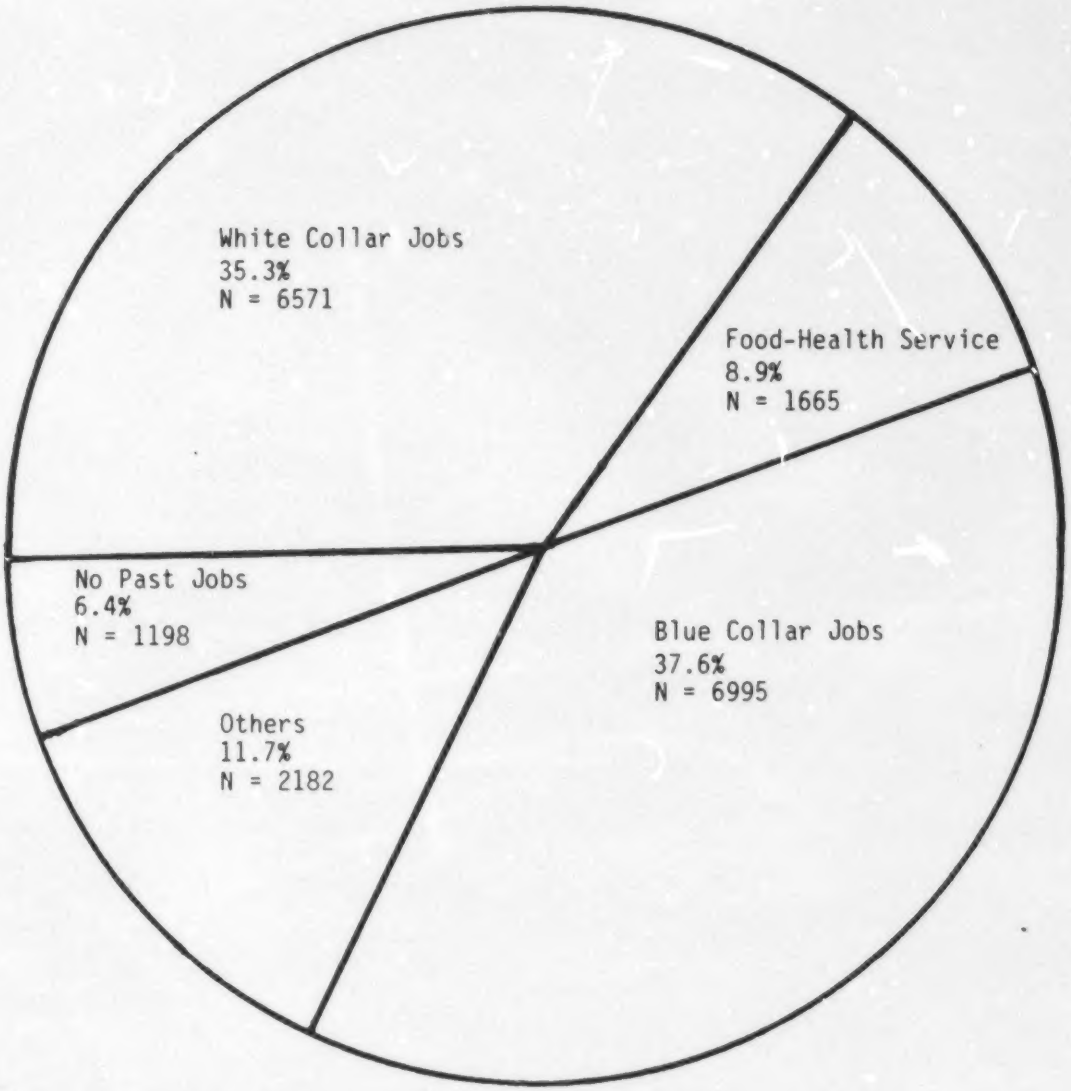

Figure 4. Percentage Distribution of Types of Previous Jobs Reported
N = 18,611

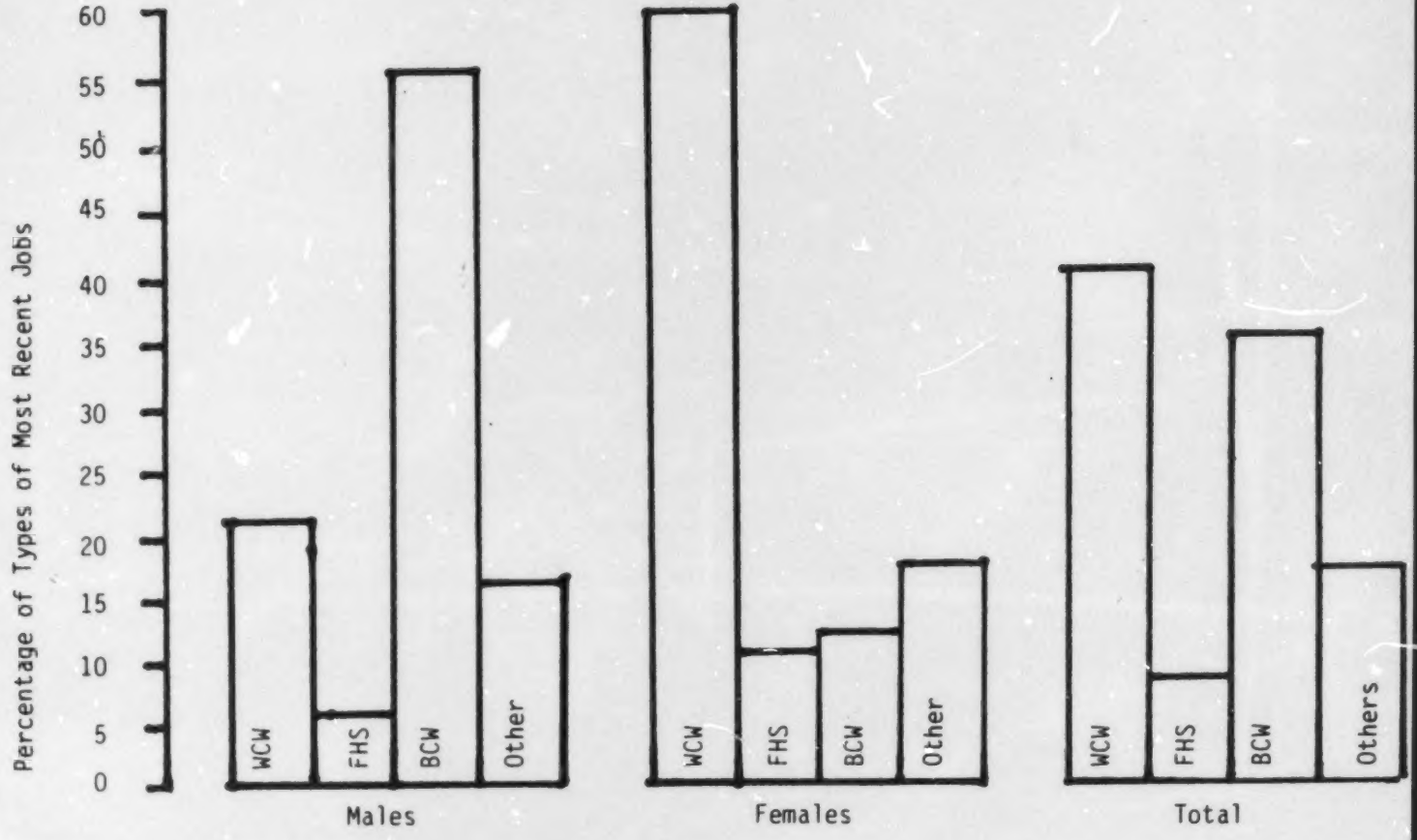

Figure 5. Percentages of Most Recent Jobs Reported by Males and Females

WCW = White Collar Worker
FHS = Food-Health Service
BCW = Blue Collar Worker

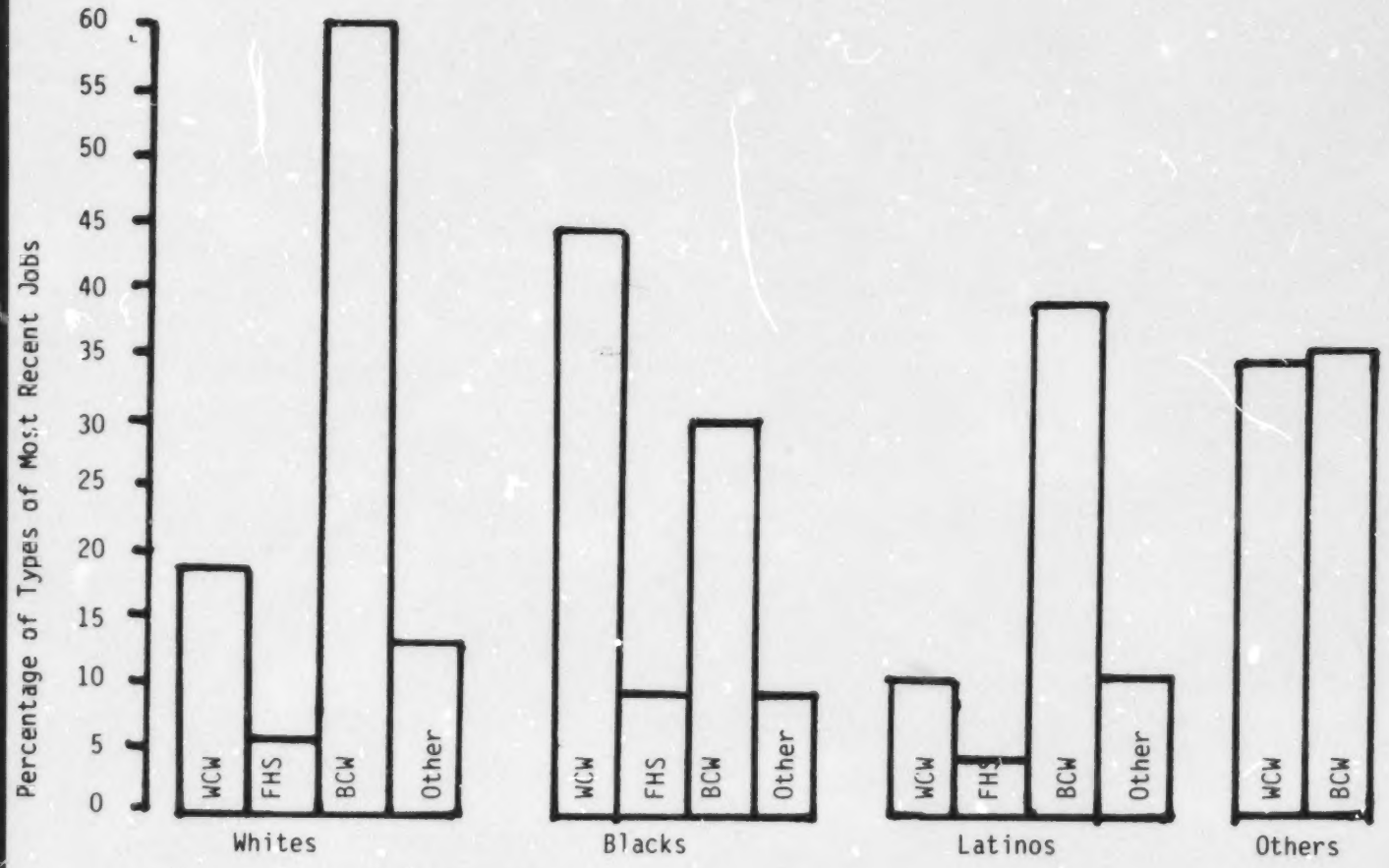

Figure 6. Recent Jobs Reported by Race

WCW = White Collar Worker
FHS = Food-Health Service
BCW = Blue Collar Worker

Latinos were more heavily unemployed in blue collar jobs followed by unemployed in white collared jobs.

Referring to the job history blanks one may readily notice that there were quite a number of these individuals who had long work histories. They are the victims of the demise of heavy industry in the Chicago area and as a result had lost their positions. Previously these jobs are skilled to semi-skilled and are not jobs that require lengthy training although some of them, like secretarial work, could be considered as white collar jobs.

As one part of the screening, they filled out an interest inventory which had been developed by the Department of Labor. Figure 7 shows the top five interests that were selected by both males and females. The interest selected by the highest number is operating a computer terminal, and to plan and write computer programs. We take this to mean that these clients have a sensitivity to the labor market and are searching out fields which would offer promise of employment. However the interest inventory results do not take into consideration whether clients are able to enter into these fields and we found in the referral and placement data that the admission criteria in some of these schools, educationally, were too high for the individuals to meet who said they were interested in them. For example, the data processing school had an entry level requirement of 9th grade mathematics which ruled out over 88% of the clients from applying. The next three areas of preference have to do with blue collar jobs, either driving trucks, repairing automobiles or the construction business, e.g., installation of electrical wiring. As one might expect there were some differences in the male and female choices with women listing in their top

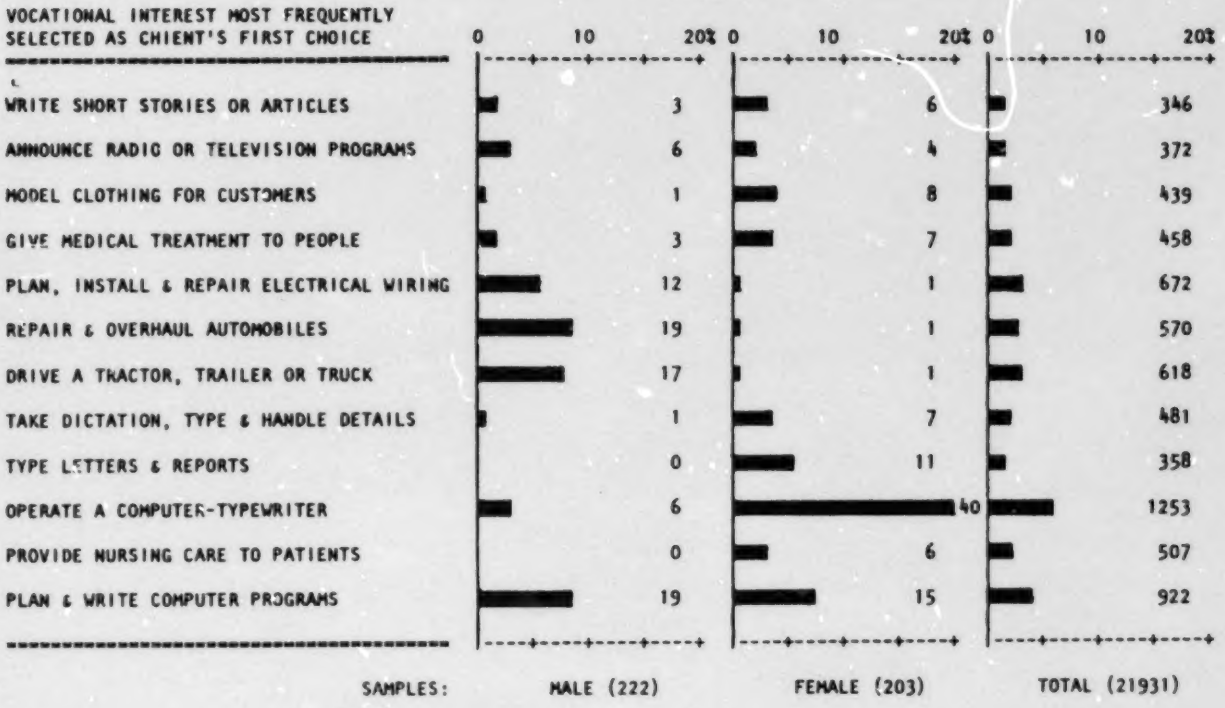
VOCATIONAL INTEREST MOST FREQUENTLY SELECTED AS CHIENT'S FIRST CHOICE
0 10 20%
WRITE SHORT STORIES OR ARTICLES 3 6 346
ANNOUNCE RADIO OR TELEVISION PROGRAMS 6 4 372
MODEL CLOTHING FOR CUSTOMERS 1 8 439
GIVE MEDICAL TREATMENT TO PEOPLE 3 7 458
PLAN, INSTALL & REPAIR ELECTRICAL WIRING 12 1 672
REPAIR & OVERHAUL AUTOMOBILES 19 1 570
DRIVE A TRACTOR, TRAILER OR TRUCK 17 1 618
TAKE DICTATION, TYPE & HANDLE DETAILS 1 7 481
TYPE LETTERS & REPORTS 0 11 358
OPERATE A COMPUTER-TYPEWRITER 6 40 1253
PROVIDE NURSING CARE TO PATIENTS 0 6 507
PLAN & WRITE COMPUTER PROGRAMS 19 15 922
SAMPLES: MALE (222) FEMALE (203) TOTAL (21931)

Figure 7. Percentage & Frequency of Vocational Interest Selected by Clients as Their Primary Choice

five, dictation and typing of letters reflecting a large number who had previous secretarial training. Moreover they listed as an interest, computer applications. which would be a major change for them.

Of particular interest in the clients selection was providing nursing care to patients and is not shown here in the Figure because though it ranked within the top 12 it was far down the line being selected by only 2% of the respondents. The importance of this choice is seen against the backdrop of the Department of Labor's projection of jobs in the service area where health care bodes strongly to be an area for job expansion in the future particularly with the growing aging population demonstrating almost an insatiable need for health caretakers in homes, semi skilled, and skilled facilities. We found it of interest that this type of service job (which doesn't require much training and is readily open, in fact, there is a strong demand in Chicago at this time) finds that these clients do not have interest or at least do not expressed an interest in this area. Is it because they do not know of the job potential or is it a fact that they are not interested in this type of service work? Our data did not give us leads on this but we would suggest from our own experiences recently in this area, the latter. In Figure 8 a bar graph shows the most recent jobs in relationship to the grade level of reading and Figure 9 is a bar graph showing the most recent jobs related to grade level in math. One can see some large differences here and a recent study that was done by the Metropolitan Council of Employers in New York on perceptions of needed job skills and job qualifications cited mathematics as more important in job placement than reading. Our data supports this observation in that the

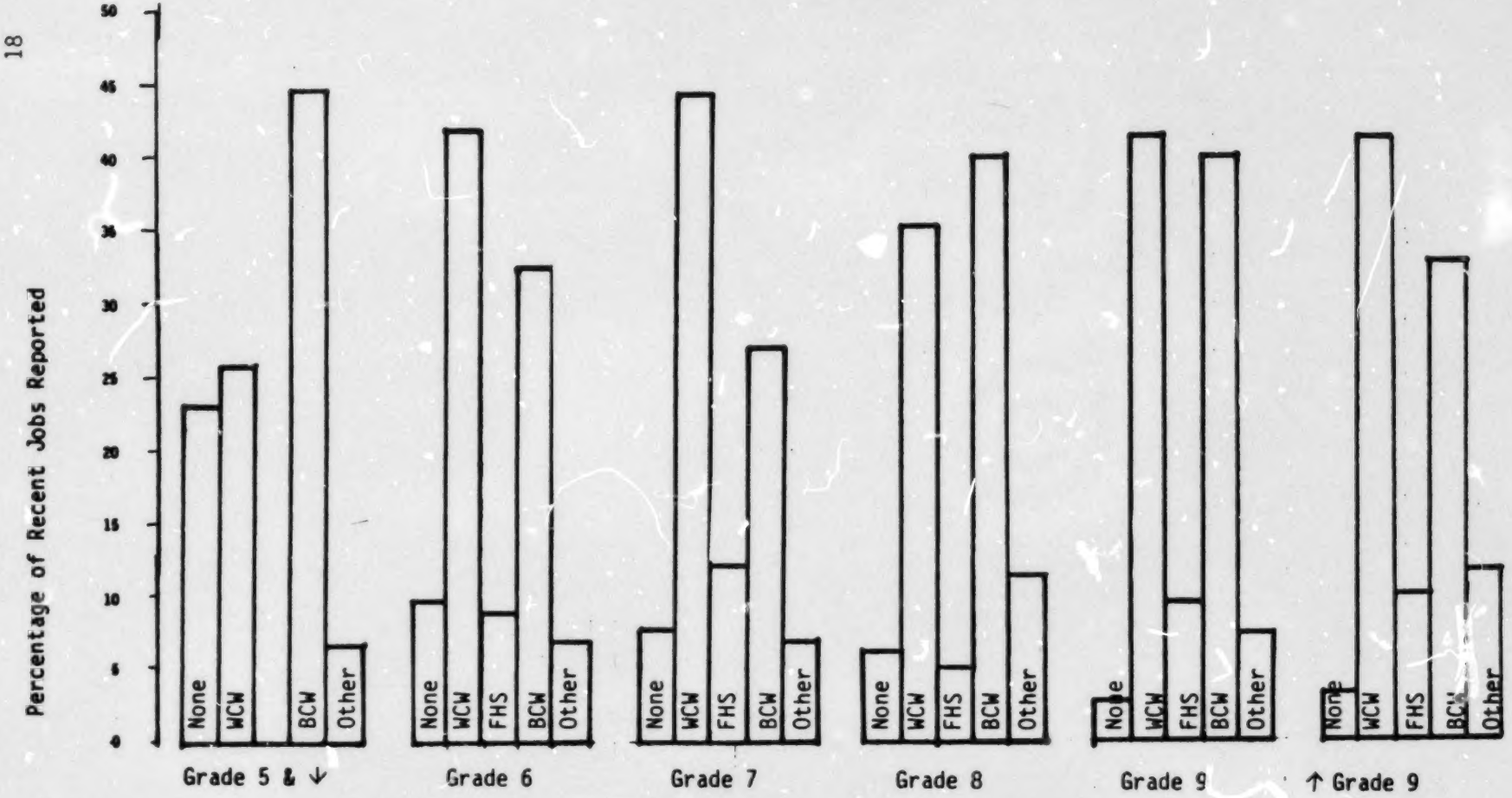

Figure 8. Percentage of Job Categories Reported by Grade Level Scores in Reading

WCW = White Collar Worker
FHS = Food-Health Service
BCW = Blue Collar Worker

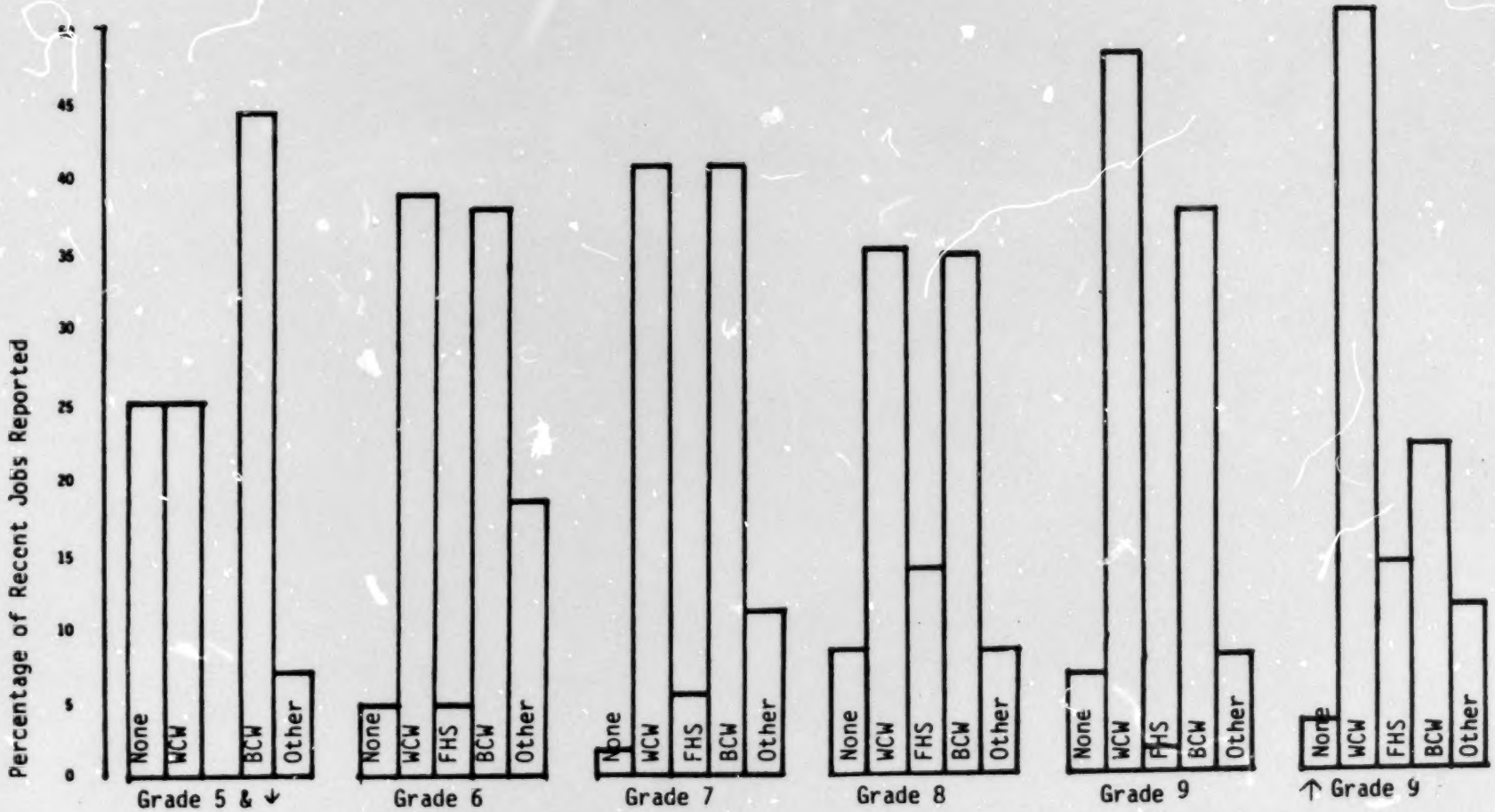

Figure 9. Percentage of Job Categories Reported by Grade Level Scores in Mathematics

WCW = White Collar Worker
FHS = Food-Health Service
BCW = Blue Collar Worker

clients who were in previous blue collar and semi-skilled jobs had lower math levels, that math seemed to be more discriminating on jobs held than did reading.

Social Policy and the Unemployed

1. The MAPS proved to be effective in rapidly assessing clients and providing needed information to counselors for placement in training schools. The data from the three sources, achievement test scores in mathematics and reading, job interests, and personal data including work histories, proved to be adequate for placement.
2. The MAPS replaced the screening system used by the various individual training schools. The uniformly centralized process was a vast improvement in its use of unbiased measures of obtaining more comparable data. Previously schools were using a range of measures, some singularly inappropriate as valid criteria and some were racially discriminatory against ethnic groups. The quality of the combinatory process of MAPS which uses the three data sources of achievement tests, personal history and interests was evident in the high rate of retention and completion of training schools. When students dropped the training school it was usually to take a job, which was understandably preferable to continuing in a training school with no sure job at the end.
3. The clients who completed the schools successfully when compared with the total group and a reject group (clients ruled ineligible to enter) were different on the educational characteristics of achievement and completion of high school diploma (see Table 1). As one might expect

those who successfully completed the schools had higher achievement. The anomaly occurs in the number of ineligible to enter schools due to low achievement who had high school diplomas, 81% compared to 58% for the total group and 65% for those who successfully completed school. These data raise a major question on the validity of years of completion in school as a gauge of educational achievement. It is clear that low achievement is a definite handicap and very low achievement presents almost insurmountable problems in retraining. For those at the bottom quartile with reading and mathematic scores of below sixth grade, there were very few training schools to receive them. It appears the issue is literacy as much as it is job retraining and schools for basic education for adults are of primacy in a job retraining program. Certainly it would be advantageous to improve basic education in the common schools to stem the tide of illiteracy which thwarts job training.

4. A distinct advantage of the MAPS lies in its implementation of a central data bank for all screened applicants. The opening of schools and classes was uneven due to a number of factors: government funding, organization, staffing, and demand. Not infrequently classes would be authorized and in the past where the schools did their own screening, the start dates would be delayed as testing for admission proceeded. Moreover there was not always a client pool recruited to be tested necessitating further delay. Once underway MAPS tested and stored clients data in a bank to be accessed for classroom placement when schools and classes opened up, reducing greatly the time of

Table 1

Comparison of Three Groups of Clients

	Successfully Completed Schools	Ineligible to Enter	Total Group
Reading Score $\bar{X}$ (Gr.E.)	7.7	5.7	7.5
Math Score $\bar{X}$ (Gr.E.)	7.6	6.6	7.5
High School Diploma	65%	81%	58%
G.E.D.	19%	5%	15%
Age $\bar{X}$	28.2	33.3	28.6
Ethnicity			
White	7.5	6.3	7.5
Black	74	73	74
Hispanic	15	19	15
Receiving Public Assistance	58%	53%	47%

moving an unemployed person into a training program, a major bonus for the psychological well-being of the client as well as the economy.

5. Our analysis on post-training assessment data is yet to be completed but we have reason to believe that careful job retraining can shift workers' fields of job skills and increase the ease of reentry into the job market. There is evidence that workers do have some sensitivity to the marketplace, but are impaired by lack of entry skills from entering or do not know how to obtain entry. A combined assessment and placement program provides a dual benefit of moving the unemployed worker toward reentry through provision of new skills in the retraining and equipping a worker with the marketing skills of targeting a job market, applying, successful interviewing, and job retention skills. When properly coordinated, through a centralized system, the marketing of job skills can be included as the assessment data are processed. Our experience in MAPS recommends that the job marketing training be included in the in-between day of testing (day one) and when the clients data are being processed and counseled (day three). A corollary benefit is obtained when a training program holds interest for the unemployed, keeps them within the system, therefy offering a more systematic process with fewer clients being lost between the components of testing, counseling and placement.

6. The placement of clients after completion of the training schools has not been part of the MAPS system. Due to the responsibility being relegated to another agency the results of training for job change and retention can not be readily tracked. Limited data were obtained from

the state unemployment agency and these data indicate that retrained clients found jobs in different but areas allied to their previous positions. These data also reflect another disturbing trend, job downgrading in the wage sector. Many of the unemployed came from basic heavy industries in Chicago, steel, automotive, farm machinery, industrial equipment. Where they had once worked in heavily unionized industries at 10 to 12 dollars per hour, they were now working in 5 to 6 dollar per hour jobs. In many respects they mirror a national trend of shrinking production jobs and more service jobs. From these limited data we can discern the national trend to export capital to lower unit wage countries and increase the service jobs at lower pay scales. Many workers find this adjustment in standard of living very difficult and to be endured only when the other alternative is no job.

Unemployment, unfortunately, has been one of the major growth industries in the midwest. As industries have shifted their production to other parts of the country and overseas, unemployment has surged and for many remains a stubborn fact of life. In general, the process of moving unemployed workers, once displaced, back into the economic mainstream, has not been well understood nor are models readily available which can expedite assessment and placement in retraining schools or jobs with a high benefit to cost ratio. We believe that our experience demonstrates that unemployed retraining and job placement requires an economy that is expanding and that retraining in and of itself is not sufficient to meet

the unemployed workers' needs for a job. Just the presence of an expanding economy and jobs will not guarantee the unemployed a position. The job skills needed are essentially those at the entry level that allows one to get in the door. But first there needs to be job slots to fill. Thus we believe a synergistic relationship between retraining and the economy, a relationship that only a coherent national policy embracing both economic revitalization and retraining, will be effective in substantially reducing unemployment.

We do not see the problems of the unemployed workers disappearing even though at this writing the unemployment index is down a few base points. Existing as they do in large numbers and fueled by the closing of large industries a system for efficient screening and counseling was designed and demonstrated its usefulness. Further investigations will look at indices of client success, personal work history, educational achievement and personal interests in retraining, and job success. Industrial policy in the retraining component will require models like MAPS to meet the large scale unemployment processing. However it is only one of three components of industrial policy: capital, incentives and retraining. All the ways of provisioning these three components are up for national debate. We believe it is necessary to view retraining as embedded in this tripartite relationship and not as an isolated discrete part. it is highly unlikely that the unemployed are oblivious to the exportation of capital which is costing them their jobs or that incentives are disproportionally distributed as in the following example.

A recent news story in a Chicago paper reported that the CEO of a

company that has made a giant contribution to local unemployment had his compensation raised from $292,611 to $508,333 from 1982 to 1983. His performance as judged by his company's balance sheet was to run a company that only lost one/half billion dollars in 1983 down from 1.7 billion loss in 1982.* National industrial policy which permits incentive bonuses to highly placed management despite the productivity sheet showing that incentives are paid from borrowed funds and capital that are still going down the rat hole of loss, only at 1/3 the previous rate is to the unemployed and underemployed workers scarcely industrial policy and is more deserving of the name, corporate scam.

In any policy consideration of models for the unemployed our preferred view is to see them embedded in larger context of industrial policy, a context that is largely outside the control of the unemployed and is based on decisions where they have little leverage. While we can effect models that provide some relief, a larger review of industrial policy and its contribution to widescale unemployment and wage maldistribution is urgently needed.

* Harvester Chief's Salary: $508,333. Chicago Tribune, February 11, 1984.